THE PATENT ALBO-CARBON LIGHT.

The Albo-Carbon Light so called from the use of almost pure white carbon in its production, promises to become one of the most useful and practical inventions of the age. The new light is the result of a very simple process by which common gas is enriched and its illuminating power increased to a marvelous extent at a comparatively insignificant cost and with absolute safety.

THE ENRICHING PROCESS.

The invention consists, in the case of single lights, of a small metallic vessel or chamber affixed at a little distance from the burner and filled with an enriching material, through which the gas passes to ignition. In the case of clusters of jets one enriching chamber will suffice.

The enriching material, originally a solid, is melted in the chamber at a low heat, its vapor is taken up by the gas and the combination produces a rich soft steady light with an illuminating power, in some cases, from three to four fold, that of ordinary gas.

With the apparatus once fixed and adjusted it requires no further attention beyond a renewal of the enriching material in the chamber, an extremely simple operation, to be performed according to rate of consumption, from once a week upwards.

THE ENRICHING MATERIAL.

The enriching material is almost pure carbon of a white color. It is made from a common waste product and is consequently quite inexpensive. It is a solid and may be moulded, in the shape of pellets or in any convenient form. It is perfectly inexplosive, it is not even inflamable and when held in a flame it simply melts, hence its absolute safety. The Patentees have designated this material "carboline." The carboline melts at a low heat, it is of uniform volatility, readily combines with ordinary gas, causes no obstruction and leaves no residuum. The enriching chamber may be replenished almost indefinitely without the slightest accumulation, so perfect and exhaustive is the evaporation of the contents.

THE ILLUMINATING POWER.

The Albo-Carbon Light has been tested by some of the best Gas Engineers and Experts in Great Britain and France and their reports establish beyond question its great illuminating power.

The poorer the gas the greater are the advantages of the new enriching process. In fact the illuminating effects appear to be in inverse ratio to the quality of the gas, but even when tried with the rich Cannel Gas used in Scotland, the effect has been found remarkable. Dr. Wallace, of Glasgow, a high authority reports the result of his tests with Cannel Gas.

"I have made a series of careful observations in order to test the utility of the Albo-Carbon light and have obtained very satisfactory results.

The apparatus I used was of simple construction and adapted for warehouses, work-shops, kitchens, &c., and a No. 2 Brays burner (fish-tail) was employed. The apparatus with a sufficient supply of carboline was weighed in a large balance of delicate construction and the loss of weight ascertained by weighing again after the experiment was completed 589 grains were consumed in 7 hours or at the rate of 84 grains per hour.

The gas was burned at about one inch of pressure and the amount consumed was 3.15 cubic feet per hour, which gave an illuminating power of 12.8 candles. With the vapor of carboline introduced into the flame a little additional pressure was required to obtain the same rate of consumption; and the light obtained tested at intervals during the 7 hours averaged 27.14 candles.

These results calculated to 5 cubic feet per hour in each case give for the ordinary gas 20.32 and for the enriched gas 43·08 candles. In other words, the illuminating power is more than doubled by the introduction of 84 grains of solid carboline per hour. In round numbers 6 grains per hour give an increased power of one candle; for 16 candles 96 grains would be required, but this is equal to 5 cubic feet of London Gas, so that 200 times this, or in round numbers, 2½ pounds give the light of 1000 cubic feet of gas.

I have no opportunity of experimenting with common gas, but the results I would expect would be even more striking than those obtained with cannel gas. I think there should be no difficulty in trebling the illuminating power of common gas.

The idea of using solid carboline for carburetting gas is a good one, and so far as I know it is novel. It presents many advantages.

Professor Keates (consulting Chemist to the Metropolitan Board of Works and Superintending Gas Examiner, London, England) records the following facts as the result of a series of experiments made to ascertain the photometrical value of the Albo-Carbon Light.

" Five cubic feet of gas, burned in the Sugg Argand burner, give the light of 16 candles.

Five cubic feet of similar gas, burned in a Bray's No. 1 burner, connected with the Albo-Carbon Apparatus, give the mean light of 36.7 candles, showing a gain of 20.7 candles upon 16—this is 2¼ times in favor of the apparatus.

The light given by a No. 4 Bray's fishtail burner, when burning ordinary 16 candle gas, is about 10 candles, calculated for a consumption of 5 cubic feet of gas per hour. This is the size burner which is probably used more frequently than any other by the gas consumer, and the gain of light in the Albo-Carbon gas becomes more striking when this burner is used as the standard of comparison, instead of the Sugg burner. Taking 10 candles to be the lighting power of such a burner, the advantage in favour of the Albo-Carbon process is the difference between 10 and 36.7, or 26.7 candles; so that the Albo-Carbon gas gives 3⅔ times as much light as the ordinary gas.

Some very important experiments, conducted by skilled officials in two Paris Laboratories, have also demonstrated the exceptional qualities of the light produced by this process, as well as its cheapness and its extraordinary subdivisibility.

It was found that a No. 0 burner (Bray), consuming only 50 litres—a little under 2 cubic feet an hour—produced, with a pressure of one inch, the light of 1.25 carcels—the carcel being a moderator lamp, burning 42 grammes of oil per hour. The ordinary " butterfly " burner used in the street lamps of Paris produces the light of only 1 carcel in consuming 140 litres, or 5⅛ cubic feet per hour, the advantage being thus three times greater in favor of the Albo-Carbon Gas.

A very small German burner, scarcely giving with ordinary Gas much more than the light of one candle, gave the light of

1 carcel with a consumption of 30 litres, a little over a cubic foot.

These experiments were made at the instance of the Chairman of the "Chemin de Fer du Nord" Baron Alfonse de Rothschild, and under the direct inspection of the Chief Engineer and the head of the Gas service.

In the course of some tests made by M. Leblanc, the well-known Gas Engineer in Chief to the Municipality of Paris, an even more extraordinary result was obtained. The pressure being increased, A No. 0 (Bray), consuming 70 litres an hour, gave the light of 1.75 carcels—or, in other words, the light of very nearly two "butterfly" burners, consuming 5 cubic feet per hour. Thus the light of 8.75 cubic feet per hour was produced by carburetting about 3 cubic feet per hour.

COST.

One thousand cubic feet of common Gas as ordinarily used will, when enriched, by the Albo-Carbon process give fully as much illumination as 3000 cubic feet. The cost of the material to produce this result will not exceed (in England) one shilling and nine pence. With the price of Gas at four shillings per 1000 cubic feet, it follows that for five shillings and nine pence a consumer will obtain as much light as he obtains from 12 shillings when using ordinary Gas. In Canada the price of Gas is much higher than in England, in consequence the economy of the new process will be more marked. Taking gas at $2.00 and the cost of Carboline sufficient to enrich 1000 cubic feet at 50 cents, the consumer would have the light of 3000 cubic feet of gas at $2.50 or at the rate of about 84 cents per thousand.

TESTIMONIALS.

The invention is being gradually and quietly introduced in England and invariably gives satisfaction. A number of Testimonials could be given from persons who have adopted the Albo-Carbon Light in shops, warehouses, offices, refreshments. rooms, picture galleries, studios, &c., &c., testifying to the peculiarly agreeable character of the light and to its remarkable economy. It has been in operation for nine months in the Eastern section of the Royal Aquarium, Westminister. This trial gave so much satisfaction that it is now used in the entire building under a contract for three years.

The following Testimonial from the Manager of that Institution, where it has been tested on the largest scale and for the longest period, may be presented.

ROYAL AQUARIUM AND SUMMER AND WINTER GARDEN SOCIETY (Limited.)

Westminster, November 20th., 1879.

To the Albo-Carbon Light Company (Limited)

DEAR SIRS,

After the lapse of nine months, during which the Eastern Annexe of this Aquarium has been illuminated by the Albo-Carbon Light, I have pleasure in confirming my testimonial of 24th February last, expressing " not only our satisfaction, but our pleasure with the results, which may be briefly summed up as giving a far more brilliant illumination (with an agreeable character of Light) than ordinary Gas, and at a greatly diminished cost." The signal success of this prolonged experiment in the Eastern Annexe has induced this Society to adopt the Albo-Carbon Light throughout the whole Building, where it is now in regular and successful operation.

Yours faithfully

(Signed,) A. P. HOBSON,
Manager.

So far from occasioning any increase of expenditure, the extraordinary improvement in the lighting of the Aquarium is effecting an immense saving to the society, more than one half of the gas-burners previously in use (upwards of 3000 in number) having been dispensed with.

ITS ADVANTAGES.

This invention can be applied in every situation where gas is used. Its advantages are the production of a good light at a small cost of production. It promises to give a superior illumination at less than one half the cost of Gas and leave a handsome profit to the proprietors.

It is an immense improvement upon the various attempts which have been made to enrich gas by the use of liquid oils.

With reference to this Dr. Wallace comments on the Patentees employment of the solid enriching material.

> "It presents many advantages over the liquid hydrocarbons hitherto employed, not the least of which is its constancy of composition, as, at a certain temperature, the whole may be sublimed, while in the case of petroleum spirit, coal tar, naptha, and similar liquids, we have to deal with a complex mixture of bodies of various degrees of volatility."

With respect to the use of solid Carboline as an enriching material in place of liquid oils, Professor Keates also remarks.

> "The employment of the material in the solid form has the double advantage of rendering the use of the apparatus more ready and simple, and of furnishing a material which can be brought without difficulty into a sufficiently uniform condition to permit of its effect being evenly exercised upon the gas from first to last."

Compared with the Electric Light which attracts so much attention the Albo-Carbon Light possesses many advantages.

Unlike the Electric Light the new process requires no extraneous machinery of an elaborate, extremely delicate, costly and (as yet) experimental character. It requires no sinking anew of an enormous capital, it envolves no change in established works, mains, meters, piping or general existing arrangements. It accomplishes the desired result, that is to say the production of a good and cheap light, through the medium of a very simple, absolutely safe and inexpensive application.

From the latest accounts of the electric light it appears that the inventor Edison does not indulge in the belief that, even if he succeeds in lighting houses distributed over a considerable area it will be done for much less or any less than the same price as now paid for gas.*

It may therefore be reasonably inferred that for domestic use this new invention will rival the Electric Light and perhaps all other Lights. That the economical advantages of the Albo-Carbon process will in all probability indefinitely prolong the employment, and establish the supremacy of Gas for all ordinary purposes.

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*Correspondent LONDON TIMES, New York, Dec 30th., 1879.

The Albo-Carbon Light has been patented in nearly every Country in Europe and America. Companies are being formed in England, France and Germany for the purpose of introducing the invention and bringing it into common use.

Examples of the Light and apparatus employed in the enriching process will shortly be on exhibition here. For the present communications may be addressed as underneath.

THE ALBO-CARBON LIGHT AGENCY,
No. 2 Elgin Street, Ottawa.